

DOUBLE-DRUM DRIES WITHOUT PRETREATMENT

Produces superior pure pumpkin flake or
powder under certain controlled conditions

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SEVERAL METHODS for drum-drying of pumpkin puree have been published. For double-drum drying, Hoover (1) recommended incorporation of large quantities of corn sirup solids and starch to improve adherence to the drum surfaces. Wadsworth et al. (2) added 400% sucrose (solids basis) to pumpkin puree to increase bulk density. Komanowsky et al. (3) found that pure pumpkin puree can be dried on a single drum-dryer if it is concentrated to at least 15% solids content.

Drying experiments at our laboratories have shown that a much superior pure pumpkin flake or powder can be made on a double-drum dryer without pretreatment of any kind. Drying conditions, however, must be controlled by: (a) applying the puree evenly over the whole length of the dryer by means of, e.g., a pendulum type feeder, (b) keeping the feeding rate constant and the pool depth low, and (c) using purees in the range from about 8% to 10.5% solids content.

A thick, uniform product sheet was obtained when pumpkin puree of 10% solids content was dried on a double-drum dryer. The puree was prepared by adding water to commercial pumpkin which was canned in #10 cans and contained approximately 11.5% solids.

The double-drum dryer had drums 12 in. in diameter and 18 in. long and was operated at 85 psig. drum-steam pressure, 2.5 rpm drum speed, and a drum clearance of 0.012 in. Two plastic end boards were used to confine the puree between the drums.

The product output was 0.9 lb per hr per sq ft,

the moisture content was 5%, and the sulfite concentration 90 ppm (solids basis) if 700 ppm (solids basis) was added to the puree before drying. On reconstitution with hot water, the dry product yielded a puree with excellent color, and pies made with it were indistinguishable in every respect from pies made with commercial canned pumpkin.

Commercially, dry pumpkin could be produced by simply diverting a portion of the puree from a conventional canning processing line onto a double-drum dryer. However, the product must be packed in nitrogen to protect the flavor (4) and ground rather coarsely through holes not much smaller than 1/16 in. to preserve texture and consistency. Production cost should be about the same as reported previously for single drum-drying by Turkot et al. (5).

Samples of pumpkin powder as well as a dry pumpkin mix for pie fillings may be obtained from the Eastern Utilization Research & Development Div., 600 E. Mermaid Lane, Philadelphia, Pa. 19118.

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